

FIG. 1

Estimation element database 4

No	Type	Estimation element	Acquired valu	Unit
1		Material	SEHC-P	
2	Cutting	Length	160	mm
3	Cutting	Width	25	mm
4	Cutting	Number of corners		
5	Plate	Length	160	mm
6	Plate	Width	25	mm
7		Number of chamfers	0	
8		Plate thickness	3.2	mm
9		Lot		
10		Material	SEHC-P	
11		Entire length		mm
12	Common	Cutting/no-cutting		
13	Common	Weight	0.0988	kg
14	Common	Finished surface		
15	Square pipe	Plate thickness	3.2	mm
16	Square pipe	Width	25	mm
17	Square pipe	Height	20	mm
18	Square pipe	Length	160	mm
19		Coefficient for number of corners		
20	Bending	Length	160	mm
21	Bending	Width	25	mm
22	Bending	Plate thickness	5.2	mm
23	Bending	Number of occasions	3	
24	Bending	Mold-changing unit time	60	s

FIG. 2

Process setup standards					
Process	Material	Plate thickness	Work in-formation	Number of holes	Bending
NP punching	SEHC	3.2	General		
NP drilling	SEHC-P	3.2	General	○	
PB bending					○

FIG. 3

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Estimation	
Process	Calculation formulas
NP (punching)	<ul style="list-style-type: none"> • $SU=0.0$ • $TT=$
NP(drilling)	<ul style="list-style-type: none"> • $SU=0.4 \text{ upper mold type} \times \text{unit time} + \text{upper mold type} \times \text{unit time}$ • $TT=\text{mold type} \times \text{unit time} + \text{number of holes} \times \text{unit time}$
PB bending	<ul style="list-style-type: none"> • $SU=\text{mold handling} [\text{mold length, length limit}] + (\text{number of occasions}-1) \times \text{slide time}$ • $TT=(\text{unit time} [\text{plate thickness, length, material}]) \times \text{coefficient} [\text{angle}] \times \text{handling coefficient}$
PB bending	<ul style="list-style-type: none"> • $\text{Men-houss}=\text{bending treatment time} [\text{plate thickness, length, width}] + (\text{number of occasions}-1) \times \text{mold change unit time}$

FIG. 4

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Plate thickness Physical unit table
 Bending-treatment time [plate thickness, length, width]
 Width→

	Length	100	200	300	400	500	700	1000	1300	1500
3.2	300		0.004			0.004	0.005			
3.2	600		0.005			0.006	0.007	0.008		
3.2	1000		0.007			0.007	0.009	0.017		
3.2	1500		0.008			0.013	0.018	0.018		0.025
3.2	2000		0.010			0.020	0.020	0.026		0.032
4.0	300		0.006		0.007		0.008			
4.0	600		0.007		0.007		0.013			
4.0	1000		0.008		0.012		0.017	0.019		
4.0	1500		0.009		0.018		0.022	0.029	0.029	0.030
4.0	2000		0.014		0.020		0.031	0.032	0.035	0.049
6.0	300	0.008	0.009	0.009						
6.0	600	0.010	0.010	0.011		0.020	0.020			
6.0	1000	0.010	0.019	0.021		0.025	0.033	0.035		
6.0	1500	0.012	0.022	0.025		0.036	0.036	0.041		
6.0	2000	0.025	0.025	0.040		0.040	0.045	0.075		
9.0	300	0.009	0.009	0.009						
9.0	600	0.010	0.014	0.021		0.024	0.035			
9.0	1000	0.010	0.014	0.026		0.034	0.036	0.042		
9.0	1500	0.023	0.026	0.038		0.038	0.050	0.090		
9.0	2000	0.026	0.042	0.040		0.050	0.092	0.169		

FIG. 5

Material unit price			Purchase unit price	
Material	Plate thickness	Unit (¥/kg)	Figure number	Unit (¥)
SEHC-P	3.2	78	#6WLN8SZN	2.9
			#6WLN6SZN	2.0
			#PS8-20SCR	1.0
			#PN16SZN	100.0

Process rate
 =10.000¥/h

~8

FIG. 6

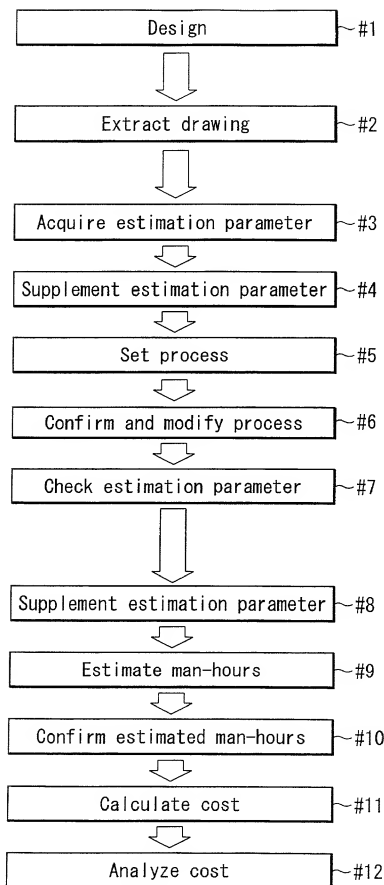


FIG. 7

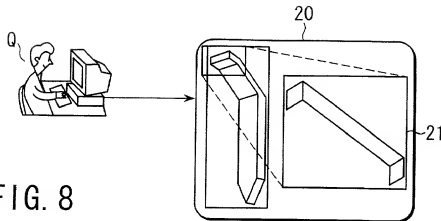


FIG. 8

Component configuration table

No	Figure number	Article name	Material	Weight
1	1 × 26-03405*B	STAND 0		
2	4 × 26-03407*A	PLATE 0	KPS-1	1.190
3	3 × 26-03410*B 3 × 26-03410\$*B *6WLN8SZN	PLATE 0		4.570
		PLATE 1	SSCC-P	
		NUT 2		
4	3 × 26-03411*A	SHAFT 1	SS41B-D	3.060
5	3 × 26-03416*B 3 × 26-03416\$B *6WLN8SZN	PATE 0		2.380
		PLATE 1	SSCC-P	
		NUT 4		
6	3 × 26-03413	PLATE 1	SSCC-P	4.000
7	4 × 26-03417*B	PLATE 1	SSCC-P	0.140
8	2 × 26-03414*B 2 × 26-03414\$*B *6WLN8SZN *6WLN6SZN	PLATE 0		13.330
		PLATE 1	SSCC-P	
		NUT 4		
		NUT 1		
9	*PS8-20SCR	SCREW 0		
10	1 × 26-03406*B 1 × 26-03406\$ *PN16SZN	FRAME 0		
		FRAME 1		
		NUT. PRESS 2		

FIG. 9

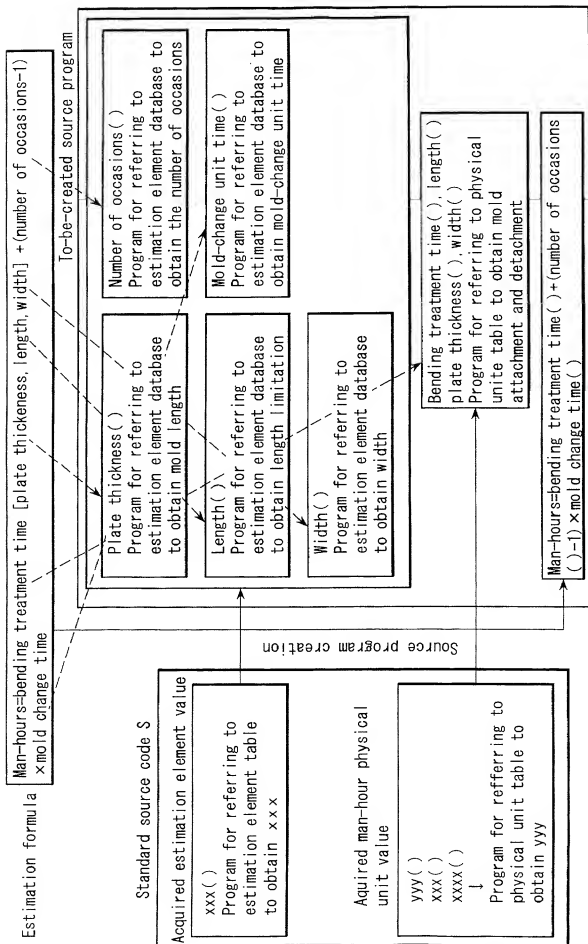


FIG. 10

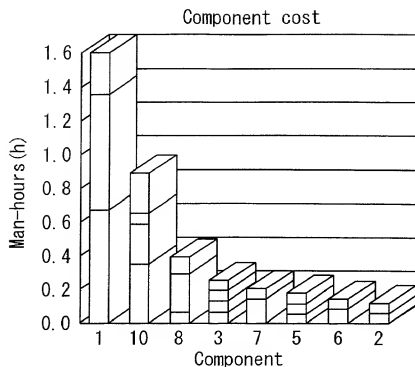


FIG. 11

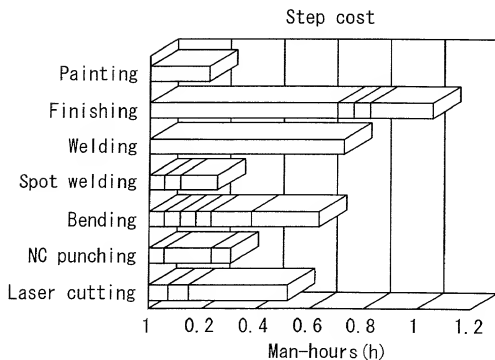


FIG. 12

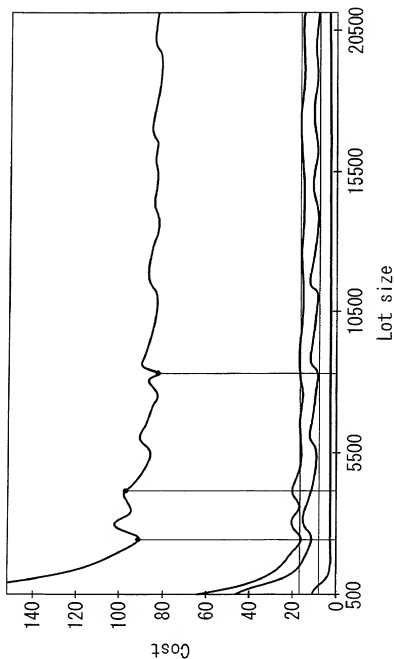


FIG. 13